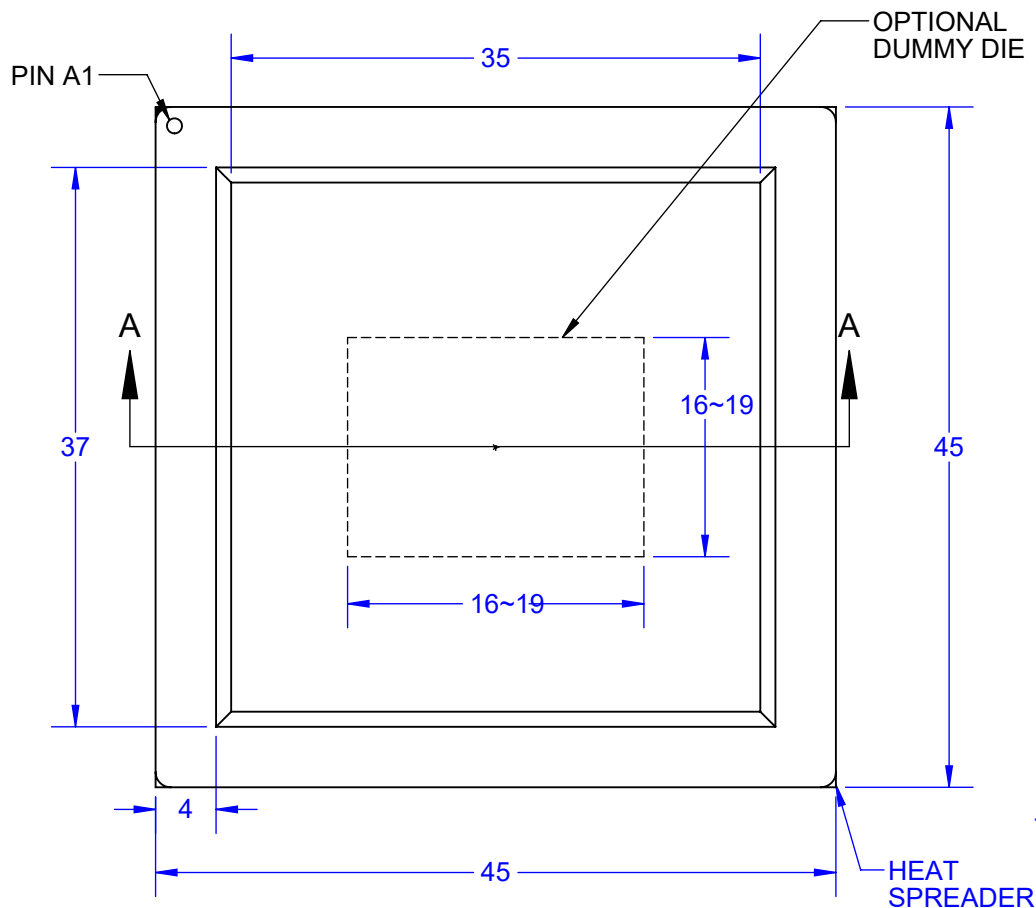
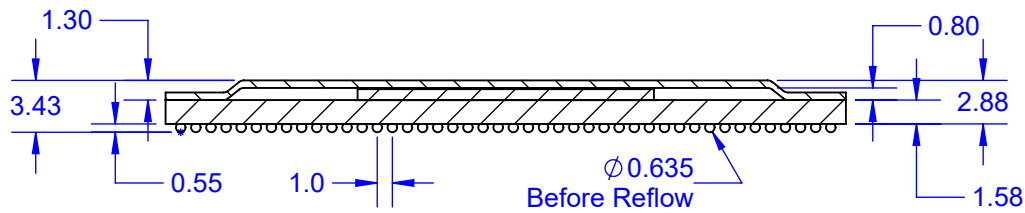
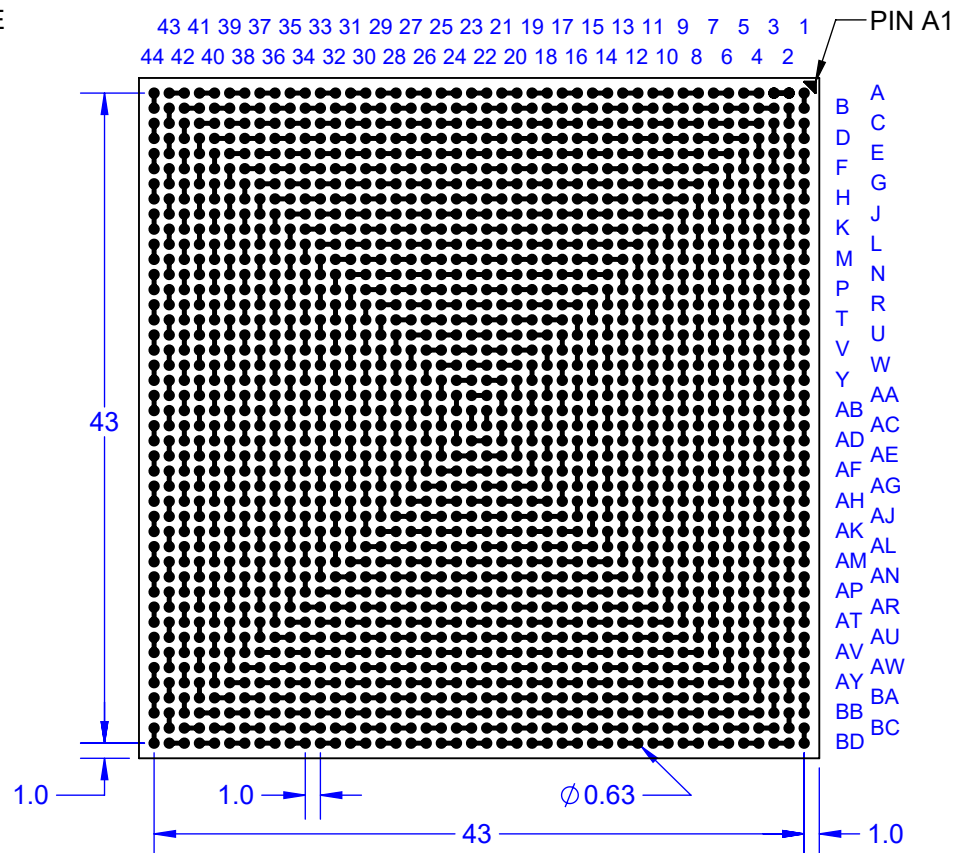


### TOP VIEW



### BALL VIEW



SECTION A-A

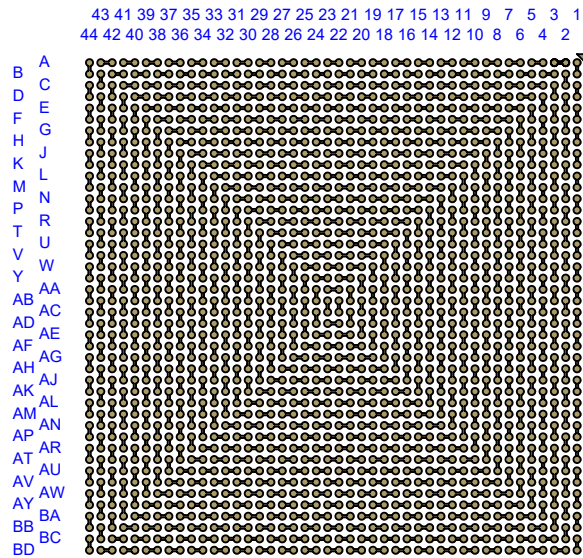
- Notes: (Unless Otherwise Specified).
- 1) ALL DIMENSIONS ARE IN MM.
  - 2) SOLDER BALL ALLOY: SEE PART NUMBER TABLE.
  - 3) BALL DIAMETER (BEFORE REFLOW): 0.635mm (25 MIL).
  - 4) SOLDER MASK DEFINED PAD OPENING: 0.508mm (20 MIL).
  - 5) PAD Cu DIAMETER: 0.635mm (25 MIL).
  - 6) SUBSTRATE MATERIAL: FR4 (ALTERNATE BT).
  - 7) DUMMY DIE IS OPTIONAL.
  - 8) DAISY CHAIN PATTERN (SEE PAGE 2).
  - 9) MSL-3 RECOMMENDED BAKING 24 HOURS @ 125°C TO REMOVE MOISTURE PRIOR SOLDERING TO PC BOARD.

PART NUMBER TABLE

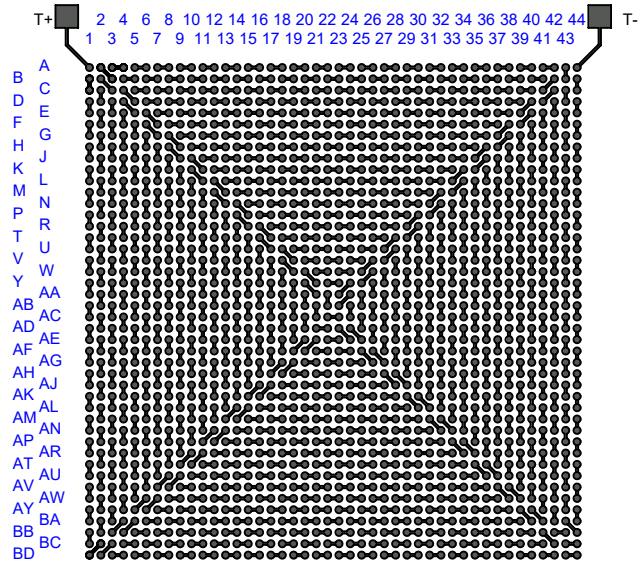
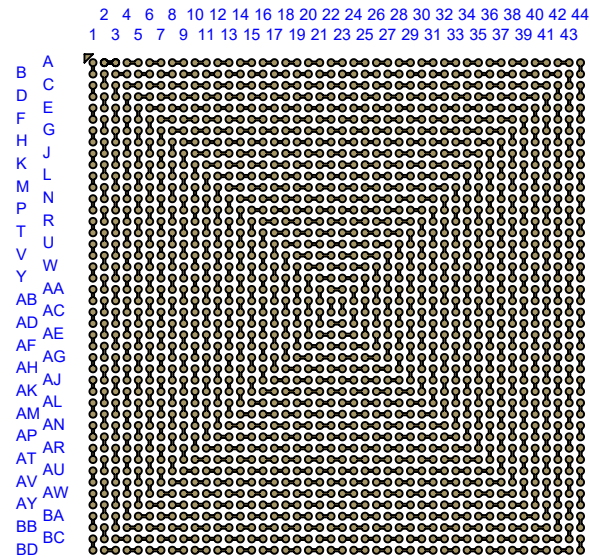
PART NUMBER	BALL ALLOY	BALL ALLOY	RoHS	Si DIE
SBGA1936T1.0C-DC449D	Sn96.5/Ag3.0/Cu0.5	SAC305	YES	YES
SBGA1936T1.0-DC449D	Sn63/Pb37	Sn63	NO	YES

APPROVALS	DATE	<b>TopLine®</b>		
DRAWN T. Au	09/23/16			
ENG M. Hart	09/23/16	TITLE SBGA1936T1.0-DC449D DAISY CHAIN DUMMY		
MFG		SCALE 2:1	SIZE A	DRAWING NO. 514490
QA				REV A
CUST				
REVISED		DO NOT SCALE DRAWING		SHEET 1 OF 11

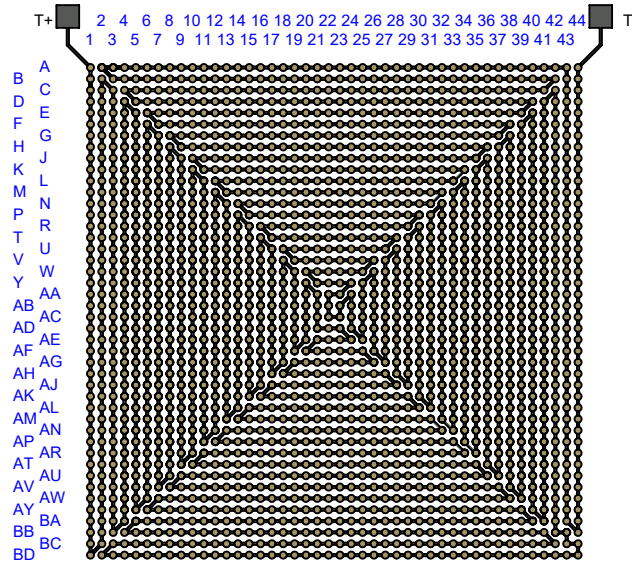
## BALL VIEW



## BOTTOM SIDE (TOP X-RAY VIEW)



## TEST VEHICLE BOARD



## AFTER MOUNTING

### Notes:

- 1) PCB BOARD DIMENSIONS ARE PRESENTD ONLY AS A GUIDELINE. DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.
- 2) PCB Cu BALL PAD DIAMETER 0.635mm [25 MIL].
- 3) PCB DAISY CHAIN TRACING LINE WIDTH 0.204mm [8 MIL].
- 4) SMD (SOLDER MASK DEFINED) PAD OPENING 0.508mm [20 MIL].

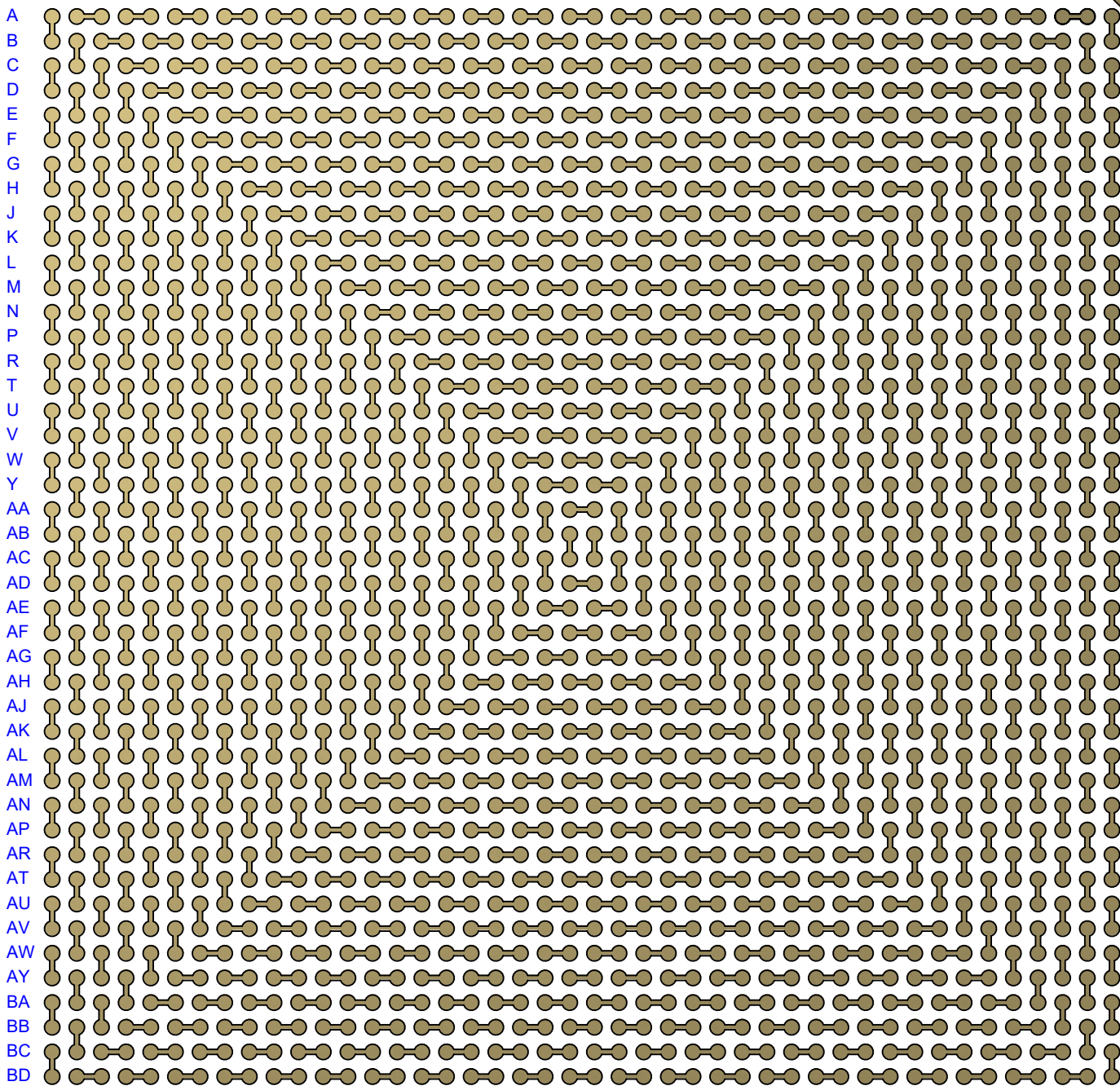
**TopLine®**

TITLE		SBGA1936T1.0-DC449D DAISY CHAIN DUMMY	
SCALE	SIZE	DRAWING NO.	REV
3:2	A	514490	A
DO NOT SCALE DRAWING		SHEET 2 OF 11	

# BALL VIEW

PIN A1

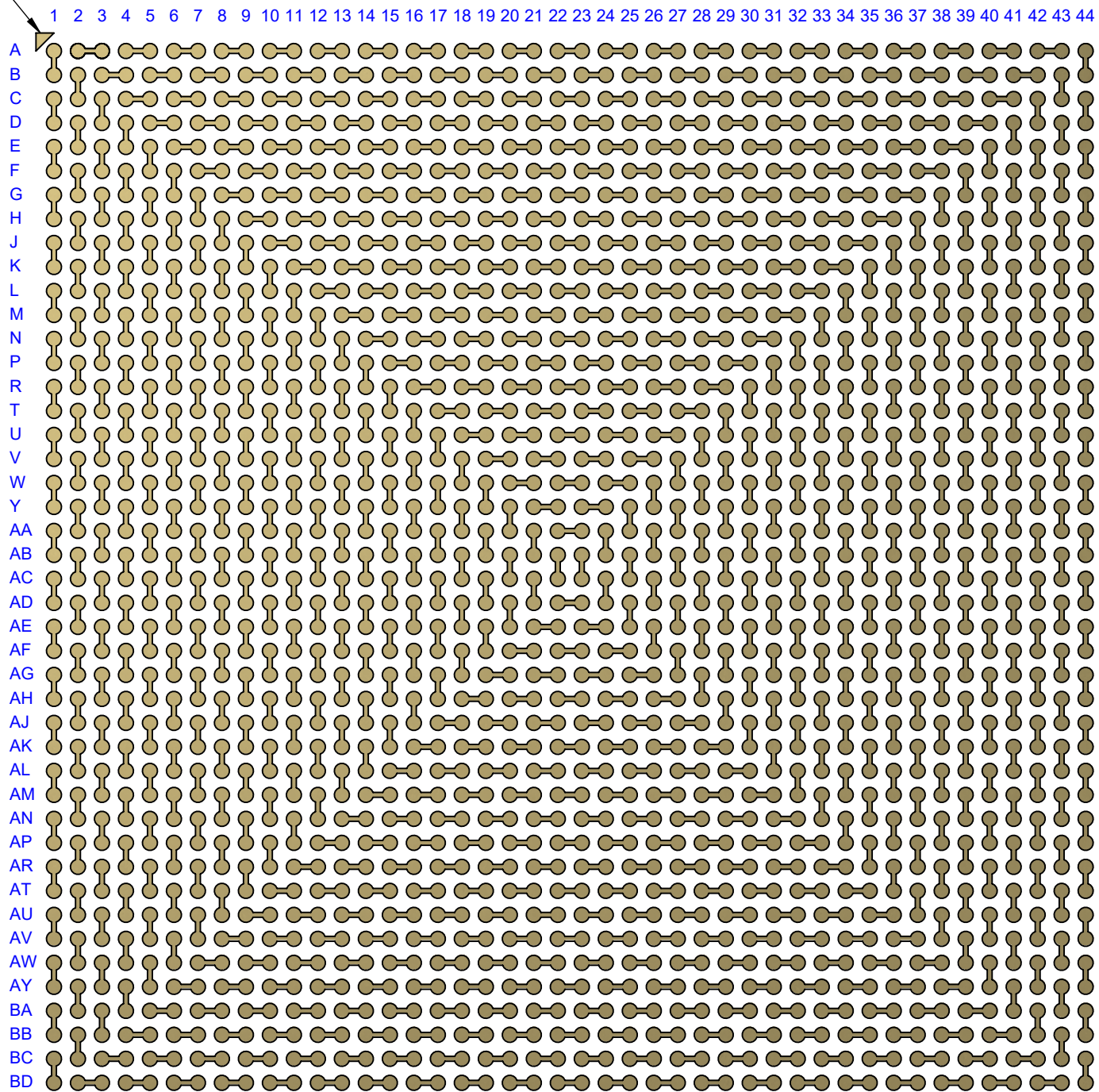
44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



<b>TopLine®</b>			
TITLE		SBGA1936T1.0-DC449D DAISY CHAIN DUMMY	
SCALE	SIZE	DRAWING NO.	REV
4:1	A	514490	A
DO NOT SCALE DRAWING			SHEET 3 OF 11

# BOTTOM SIDE (TOP X-RAY VIEW)

PIN A1



<b>TopLine<sup>®</sup></b>			
TITLE		SBGA1936T1.0-DC449D DAISY CHAIN DUMMY	
SCALE	SIZE	DRAWING NO.	REV
4:1	A	514490	A
DO NOT SCALE DRAWING			SHEET 4 OF 11



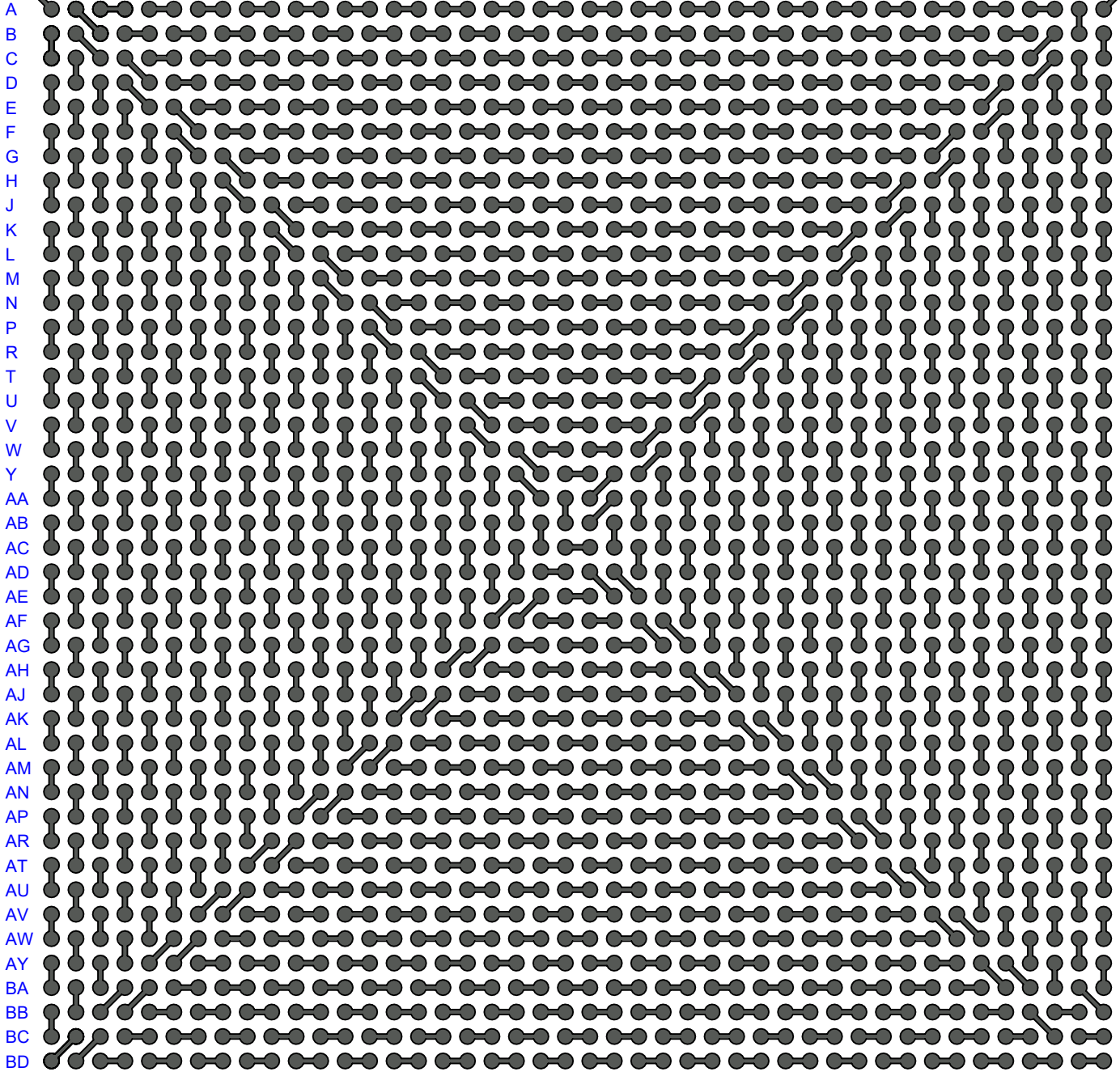
T+

# TEST VEHICLE BOARD



T-

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44



TITLE			
SBGA1936T1.0-DC449D DAISY CHAIN DUMMY			
SCALE	SIZE	DRAWING NO.	REV
4:1	A	514490	A
DO NOT SCALE DRAWING			SHEET 5 OF 11



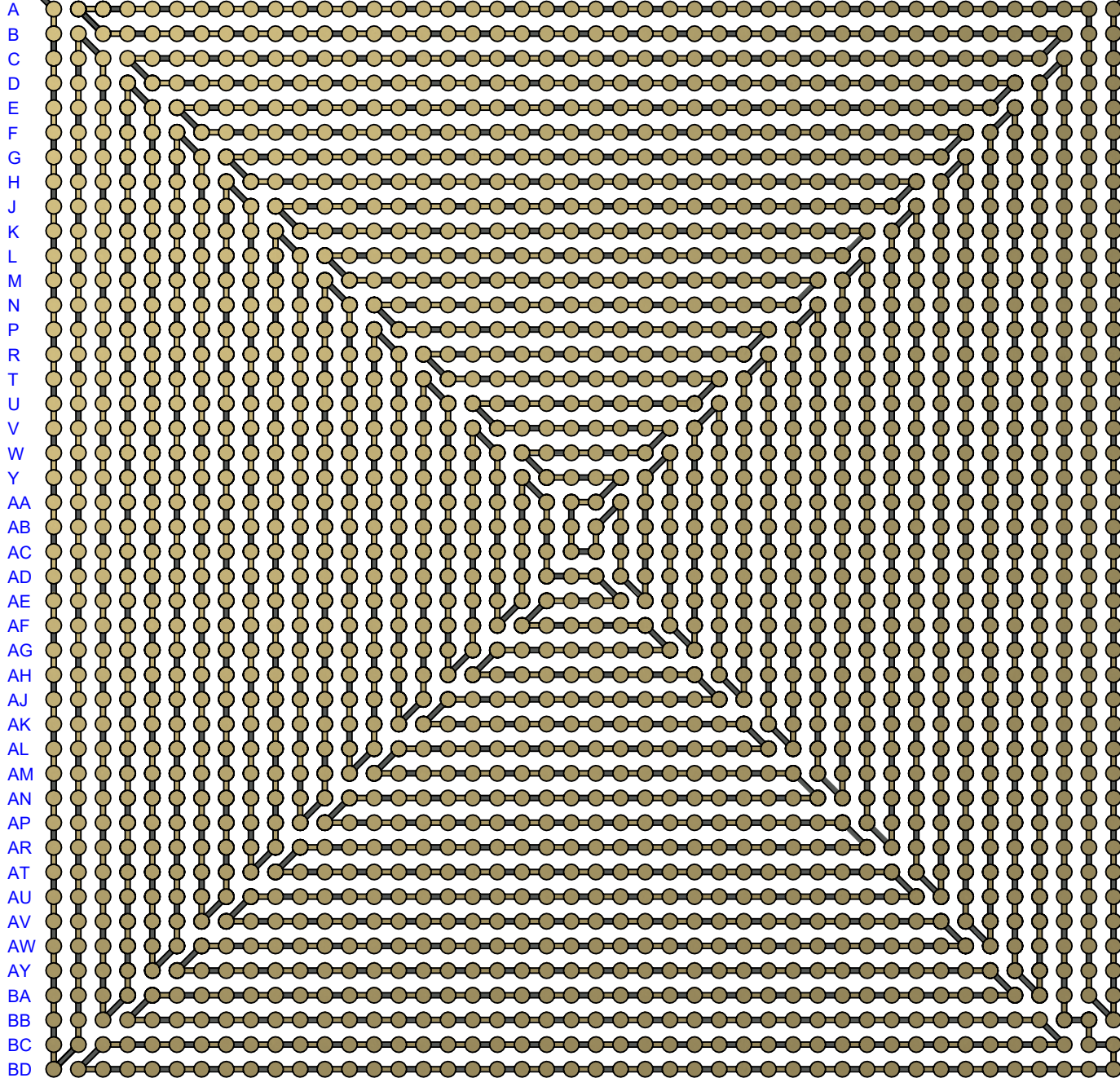
T+

# AFTER MOUNTING



T-

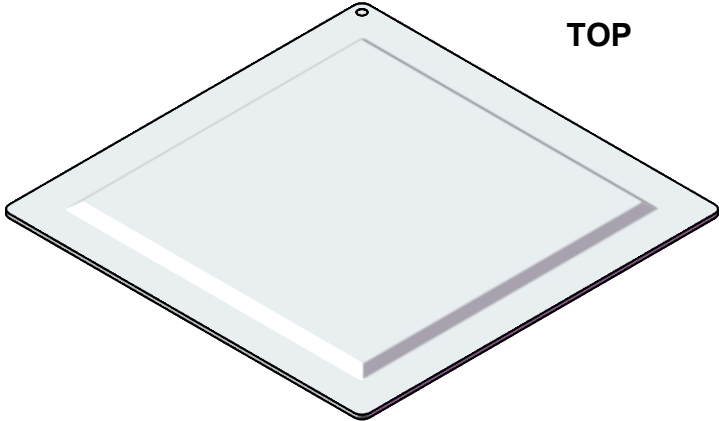
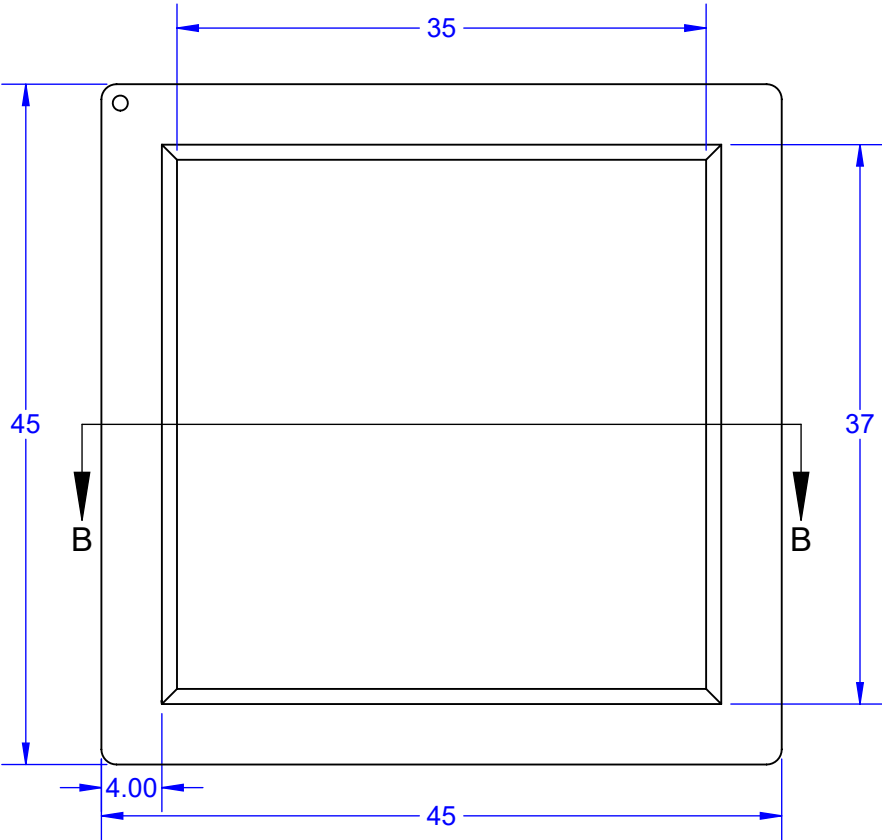
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44



TITLE	SBGA1936T1.0-DC449D DAISY CHAIN DUMMY		
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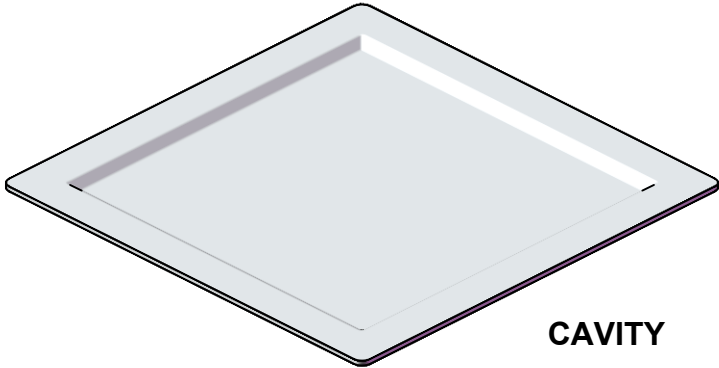
SCALE	SIZE	DRAWING NO.	REV
4:1	A	514490	A

# HEAT SPREADER

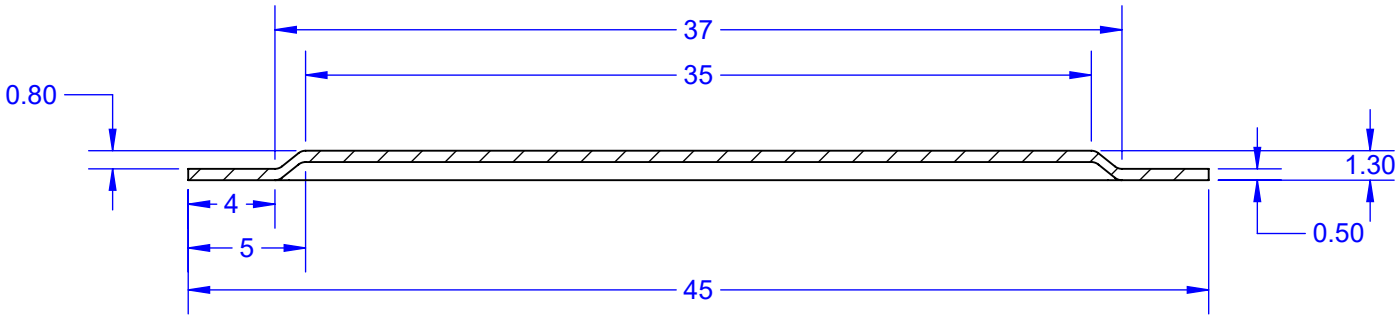


TOP

MODEL

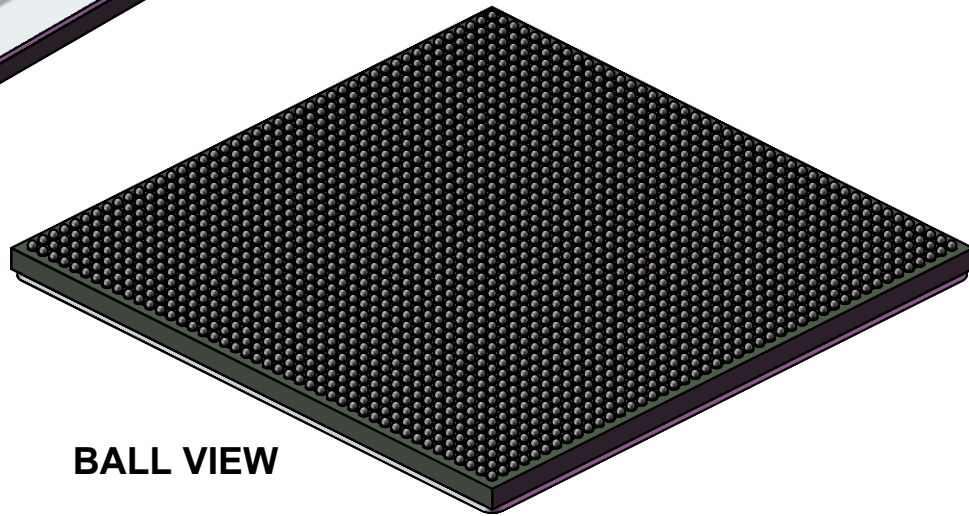
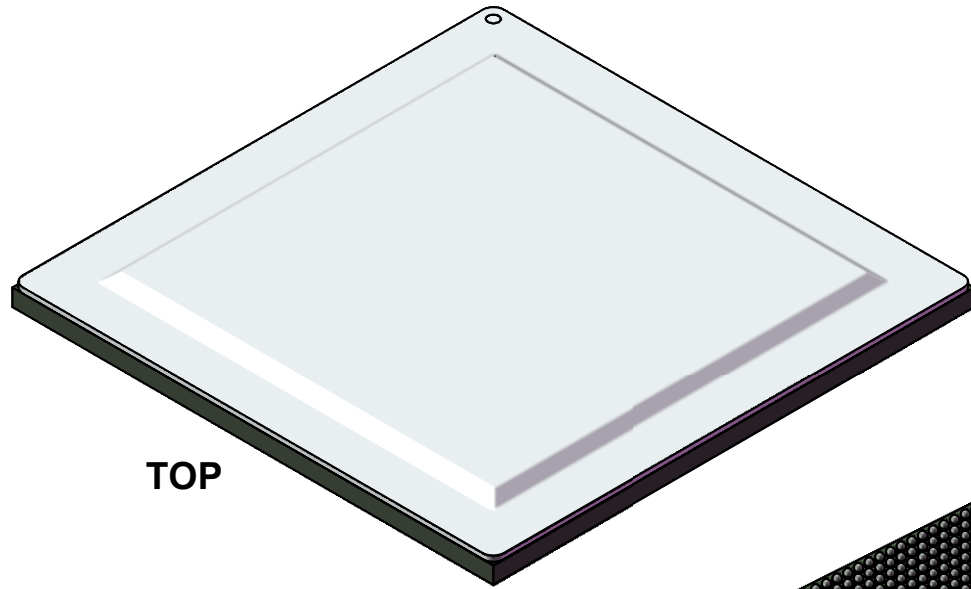


CAVITY



<b>TopLine®</b>			
TITLE SBGA1936T1.0-DC449D DAISY CHAIN DUMMY			
SCALE 2:1	SIZE A	DRAWING NO. 514490	REV A
DO NOT SCALE DRAWING			SHEET 7 OF 11

# MODEL



**TopLine**<sup>®</sup>

TITLE SBGA1936T1.0-DC449D  
DAISY CHAIN DUMMY

SCALE 2:1	SIZE A	DRAWING NO. 514490	REV A
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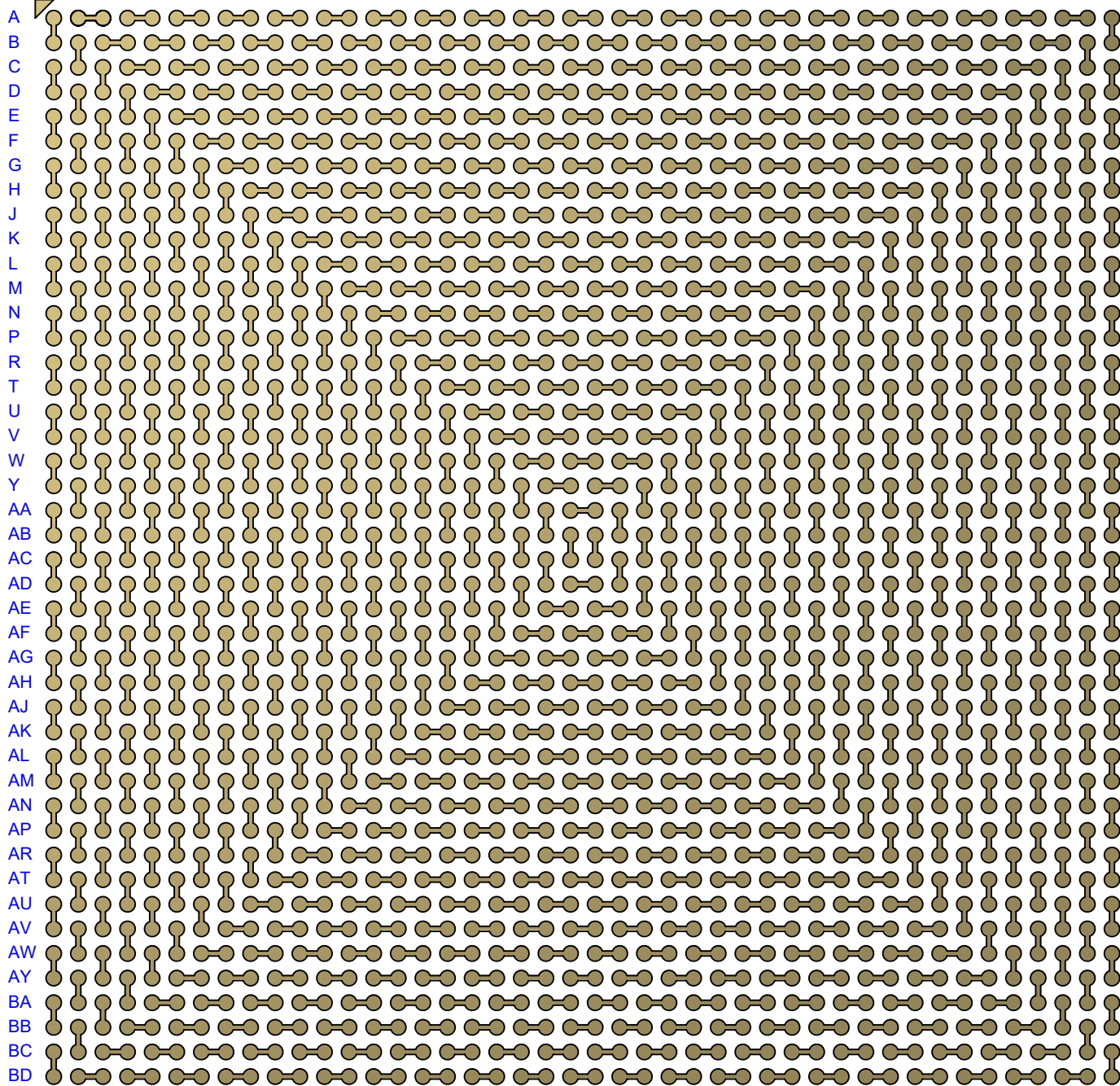
DO NOT SCALE DRAWING

SHEET 8 OF 11



# GROUND PLANE - LAYER 2

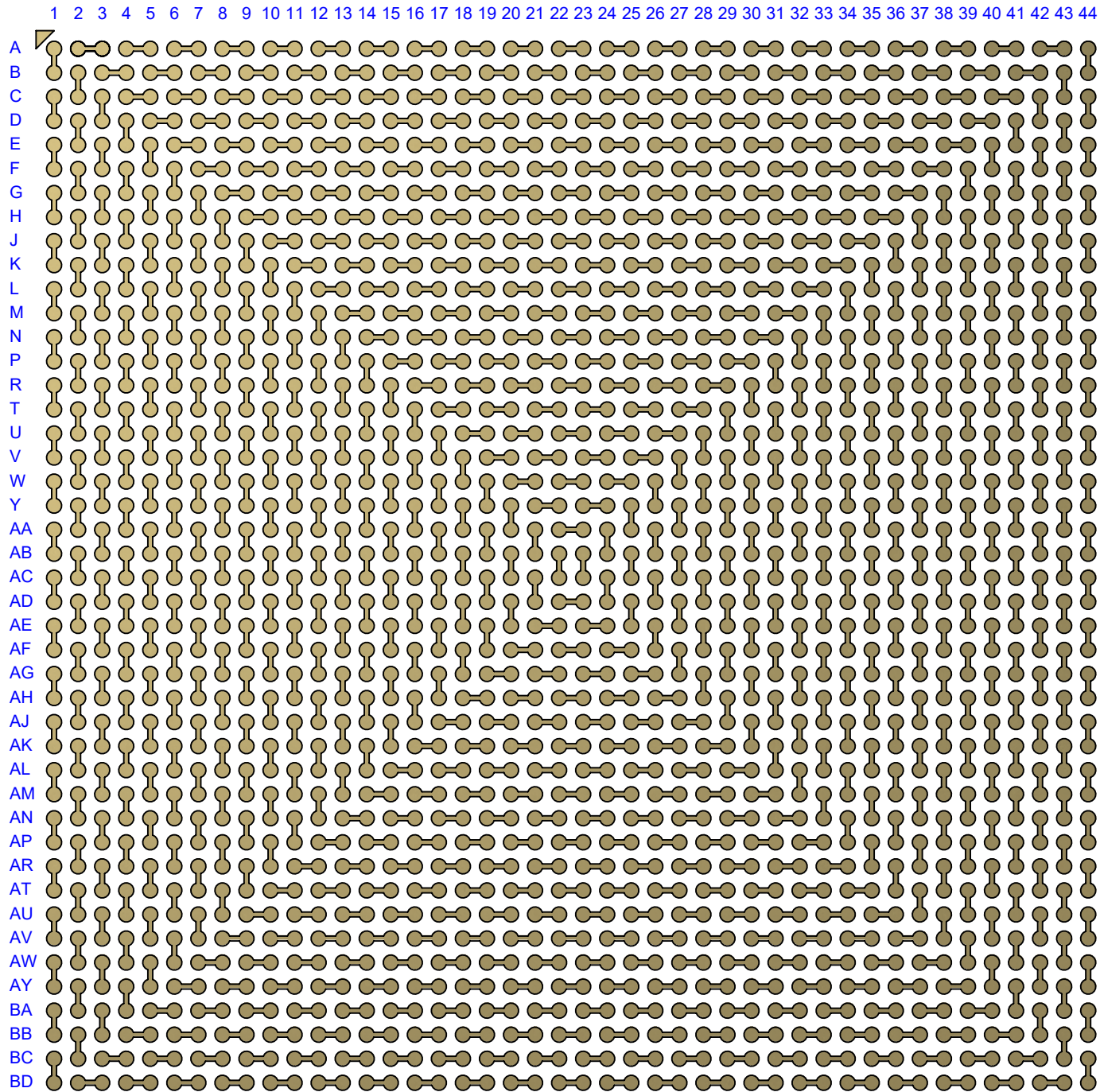
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44



TITLE SBGA1936T1.0-DC449D  
DAISY CHAIN DUMMY

SCALE 3:1	SIZE A	DRAWING NO. 514490	REV A
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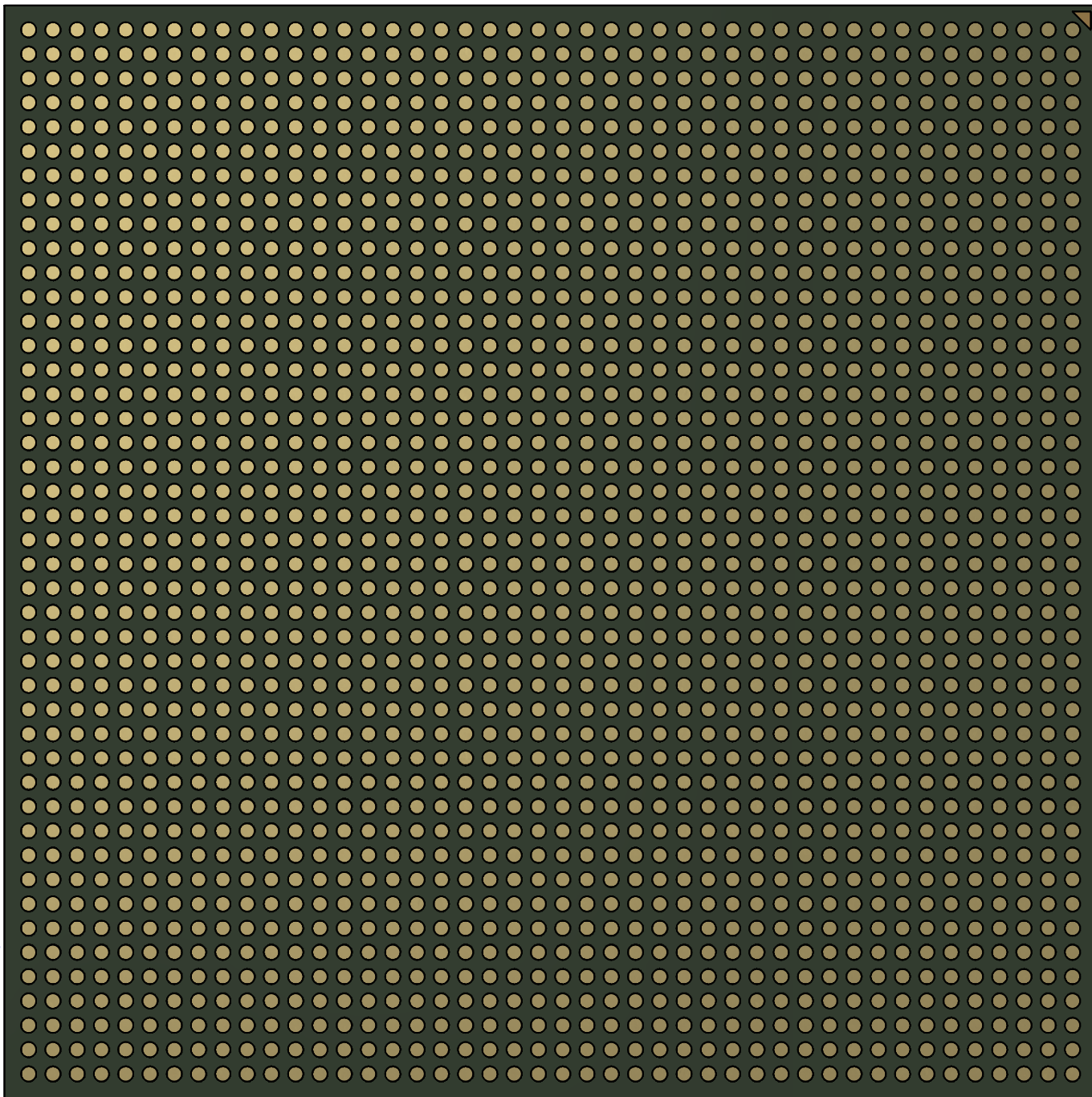
# GROUND PLANE - LAYER 3



<b>TopLine<sup>®</sup></b>			
TITLE		SBGA1936T1.0-DC449D DAISY CHAIN DUMMY	
SCALE	SIZE	DRAWING NO.	REV
3:1	A	514490	A
DO NOT SCALE DRAWING			SHEET 10 OF 11

44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

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AU  
AV  
AW  
AY  
BA  
BB  
BC  
BD



# BOTTOM SOLDER MASK (RIGHT READING)

<b>TopLine<sup>®</sup></b>			
TITLE		SBGA1936T1.0-DC449D DAISY CHAIN DUMMY	
SCALE	SIZE	DRAWING NO.	REV
4:1	A	514490	A
DO NOT SCALE DRAWING			SHEET 11 OF 11